Self Building Our Dream Home - Caxton

Property Overview

Project timescale: June 2021 - July 2022
Type: Near-Passive new build detached house
Structure: Timber-framed
Floor area: 300m^2
Cost of build: £500k
Occupants: 3 adults, 1 child
Estimated energy consumption: 10,000 kWh p.a.

Meet your hosts, Ana & Chris:

Chris says: I have a degree in Civil Engineering and a background in project development and Ana likes designing houses. Although neither of us is a professional architect or designer, we relished the idea of designing and building our own home when the opportunity in Caxton arose. The location was excellent. We had previously lived in a Grade 2 listed barn conversion, and were very excited at the prospect of designing our very own low maintenance, 'Forever home'. A key design principle was that our new home would not only be super comfortable in the present, but also future-proofed to anticipate climate change and reduced mobility.

Foundations & floor

Key Design Features

Self building allowed us the freedom to make design choices not available to retrofits. We worked under normal planning considerations. We are outside the Caxton Village Envelope so our architect expected the planners would be stricter than usual, restricting heights and adding requirements to follow local vernacular building styles etc. However, maybe because we are self-builders, the planners were very reasonable with us and our other self-build neighbours. After a 13 month build, we moved into our new home in July 2022, and are very happy with the results. Our new home features:

Walls taking shape

- Timber-frame
- Maximum solar gain - lots of windows!
- Spray insulation to maximise air tightness
- Low energy lighting
- Air source heat pump (ASHP)
- Underfloor heating throughout the ground floor: a wet system set in screed and driven by a heatpump
- Low maintenance fibre cement cladding, recommended by our architect
- 6kW Solar PV arrays on South and West facing roofs; expected annual output c5,000kWh
- 22kW EV charging point

Completion

Comfortable in all weathers

Key Future-proofing Measures

- Disabled access throughout the main house; disability-friendly groundfloor bathroom; lift
- MVHR with cooling
- Excellent insulation
- Efficient blinds
- Supplementary heatpump to accommodate future increased temperatures
- 5,000 litre rainwater harvesting system

Advice

For us, the best sources of information and advice were from personal contacts and internet searches. Having worked on this project, we've learned that it's so important to ***really know what you want and be insistent about getting it.***

Performance

We are very happy in our new home and feel good about our energy conscious, future-proofing decisions. We started out being very concerned to minimise running and maintenance costs, and we believe our new home achieves these objectives and much more besides.

Our top tips:

- ***Decide what you want***
- ***Decide on your budget***
- ***Make sure you have a wide choice of suppliers***

Key Specifications

Insulation & Glazing

- Spray insulation
- Lots of windows for solar gain
- Fibre cement cladding
- Efficient blinds

Heating & Energy

- 6kW Solar PV
- Low energy lighting
- ASHP
- MVHR with cooling
- Underfloor heating
- 22kW EV charging point

Water, Garden & Natural Systems

- 5,000L rainwater harvesting capacity

Future-proofing Strategies

- Disabled-friendly design
- Supplementary heatpump

Key Contacts, Products & Advice

Architect: Thom O'Connor, Twin Oaks
Spray insulation: Icynene LDC-50 Open Cell & Closed Cell, Sprayfoam
ASHP: LG 16kW heat pump & 300L pre-plumbed cylinder, SGS Energy (part financed with small grant)
Underfloor Heating: Uheat
Pumped screed: Liquid Screed Pumping
MVHR: Airflow system, Solarcrest
Fibre cement cladding: Hardiplank, James Hardie